



**BALLARD**  
**MARINE CONSTRUCTION**

Field Report Prepared For:

## **Hyperion Treatment Plant**

ROV Inspection

## **One-Mile Diversion Chambers**

Report Date: October 25, 2021

Prepared By:

Ballard Marine Construction, LLC.

Randy Bekkers, Lead ROV Supervisor

Ballard Project Number 0718030



October 25, 2021

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**RE: One-Mile Outfall Diversion Chambers**

Mr. Keng,

Attached is our report summarizing the findings of the Remotely Operated Vehicle (ROV) inspection Ballard Marine Construction performed on the One-Mile Outfall Diversion and Surge Chambers on October 22, 2021.

Should you have any questions and/or comments please feel free to contact me at the phone number and/or email listed below. Thank you for allowing us to provide these services for you and we look forward to working with you again soon.

Sincerely,

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## 1 Introduction

Ballard Marine Construction performed underwater video inspection on October 22, 2021 at Hyperion Water Reclamation Plant in general accordance with the U.S. Coast Guard (USCG)-accepted Association of Diving Contractors International, Inc. (ADCI) *Consensus Standards for Commercial Diving and Underwater Operations* (6<sup>th</sup> Ed.), the U.S. Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910, *Subpart T – Commercial Diving Operations* (Dir. CPL 02-00-151; 2011), and the *U.S. Navy Dive Manual*, Rev. 6 (April 2008).

### Project Location

The inspection was carried out at the One-Mile Outfall Diversion and Surge Chambers (see Figure 1).



Figure 1: Project Location

## 2 Scope of Work

Ballard's scope of work consisted of performing an inspection of the Surge Chambers for the one-mile outfall and the removal of any floating plastic debris found in the structure. Documentation of the inspection was carried out utilizing Closed Circuit underwater cameras mounted to an ROV.



### 3 Inspection Methods

The Inspection was conducted using an experienced 2-person crew to pilot the Remotely Operated Vehicle (ROV), to log the data that was collected and to manage the ROV's tether. A VideoRay defender ROV system was used for this inspection (see Figure 2). This ROV system is fitted with high output LED light arrays and a High-definition camera to obtain the best possible visual inspection. An external camera was also mounted on top of the ROV to document the condition of the structure above the water line.

Ballard ROV operators started the inspection in the West diversion structure to the north of the one-mile outfall. The ROV was deployed through an opening on the southwest corner of the west diversion structure. The water depth of the chamber was 12in or less. While in the surge chamber ROV floated on the surface and documented the condition of the interior of the diversion structure with both of the attached cameras.

Any plastic debris that was observed was collected by the ROV and removed from the chamber.

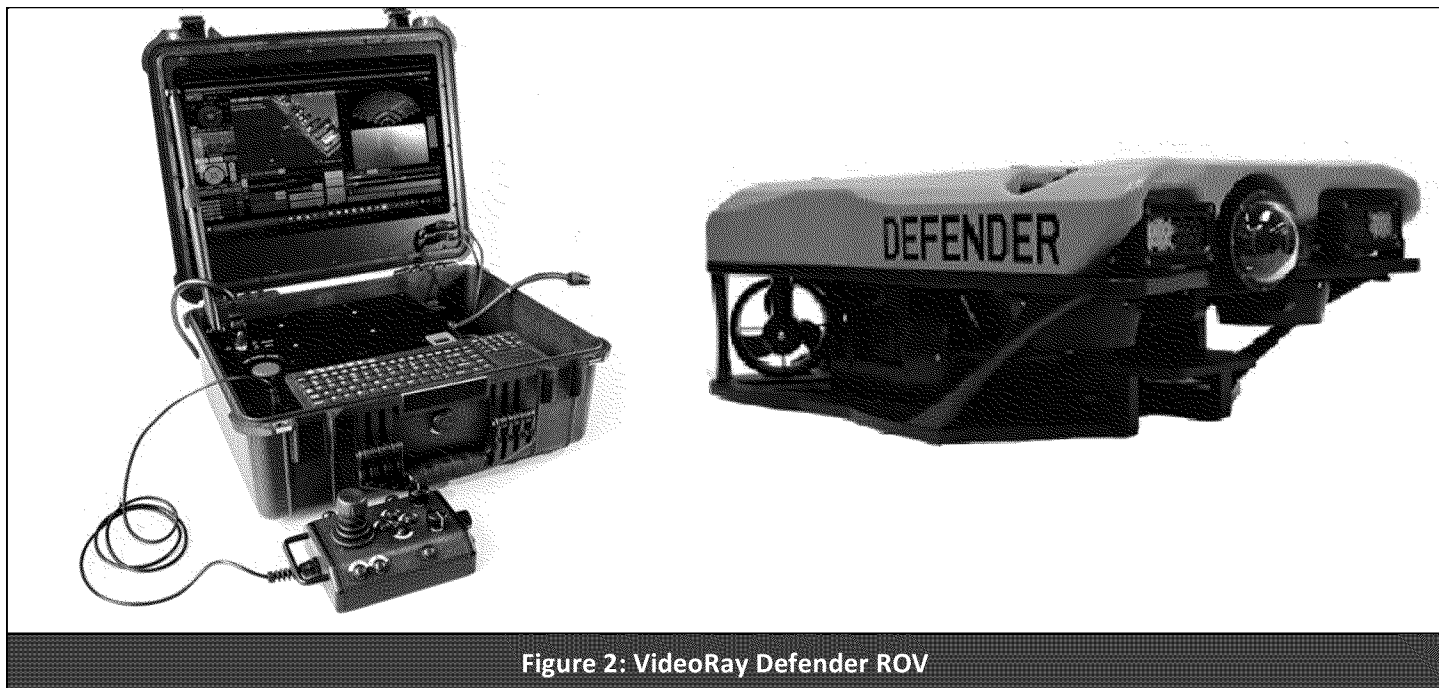


Figure 2: VideoRay Defender ROV

## 4 Inspection Findings

### 1-Mile outfall East and West diversion structures

Overall, the condition of the diversion structures was clean, and the water clarity allowed for a thorough inspection of the structure both above and below the waterline. There were no observed indications of structural issues or concerns inside of the diversion structures. The gates appeared to be clean and free of obstructions. There was a very thin layer of sedimentation on the bottom of the structure, but it is not a concern at this time, and it would not have obscured structural defects if any were present.

The diversion structures had some floating debris that appeared to be from storm drains nearby. In the photos and video files provided with this report a majority of what is seen floating in the water is broken up leaves/organic material and minor sediment. The ROV found and removed several small pieces of plastic.

## 5 Inspection Photographs





Photo #2: East diversion structure below water line



Photo #3: East diversion structure piping above water on Northwest wall





Photo #4: East diversion structure piping in southwest corner

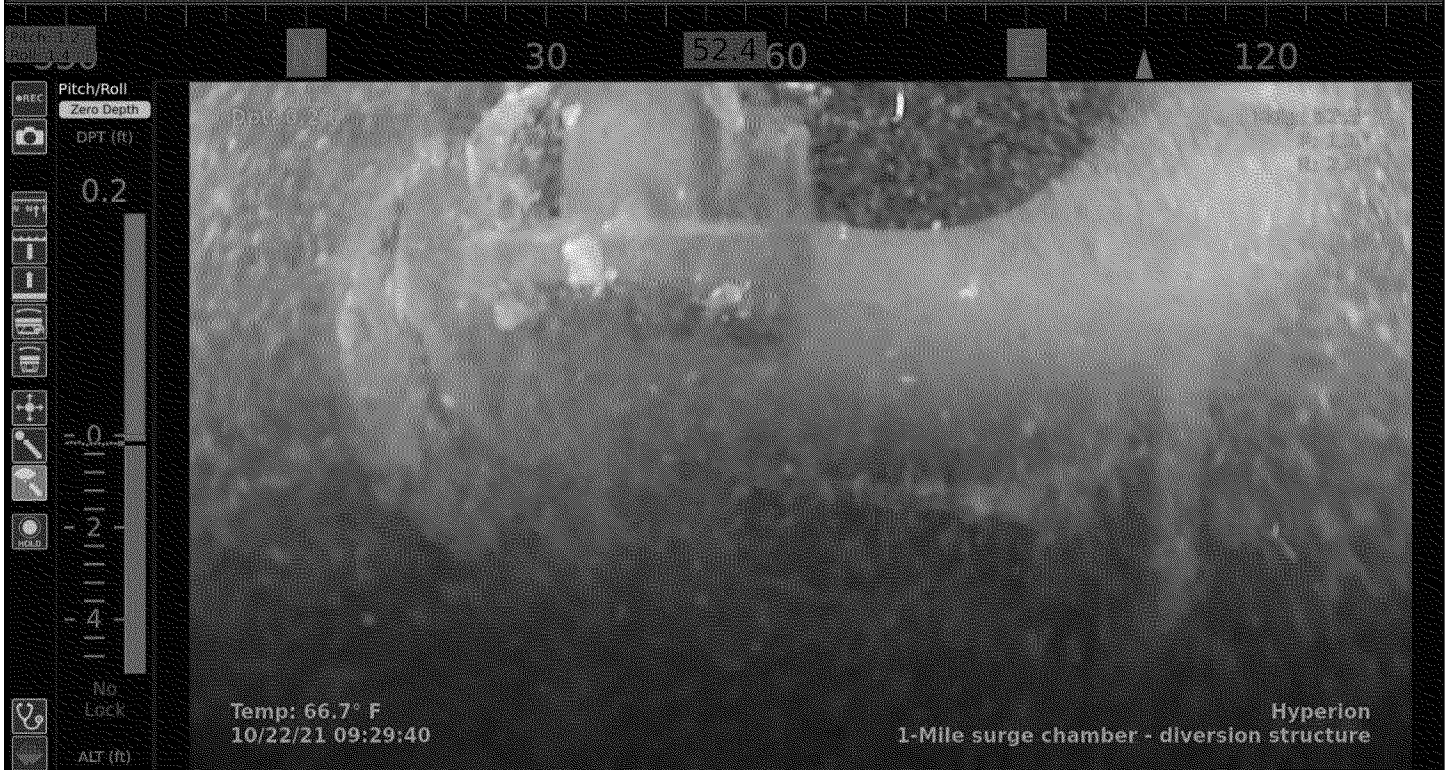


Photo #5: East diversion structure piping in southwest corner below the water line



10/22/2021 09:28:06

Photo #6 East diversion structure gate



10/22/2021 09:30:56

Photo #7: South wall and ceiling of tunnel between the east and west diversion structures





Photo #8: South wall and floor of tunnel between the east and west diversion structures



Photo #9: North wall and ceiling of tunnel between the east and west diversion structures

Photo #10: West wall and ceiling of the west diversion structure



Photo #11: west wall and floor of the west diversion structure



Photo #12: West diversion structure gate





Photo #13: West diversion structure gate



Photo #14: West diversion structure - piping between gates

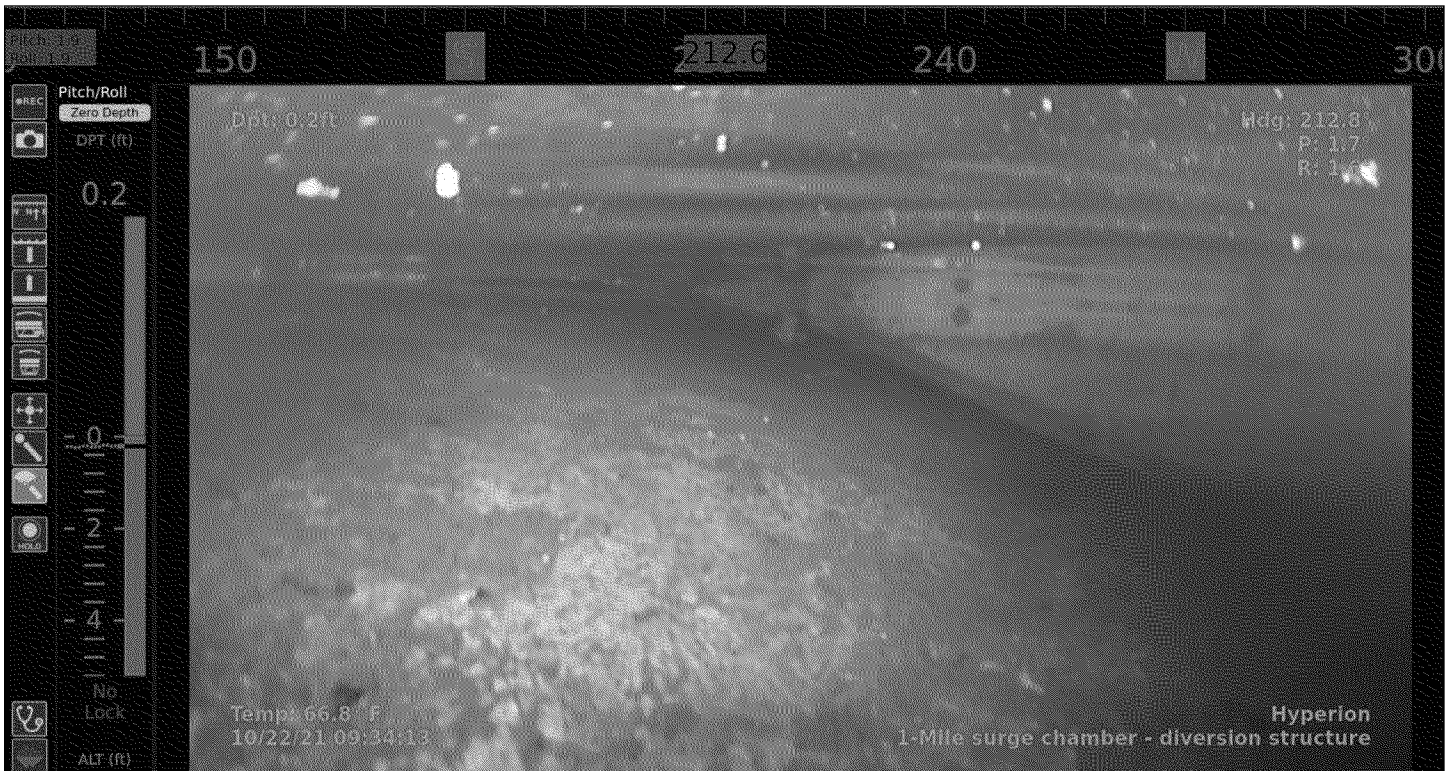


Photo #15: West diversion structure- floor ramping up towards surge tank



Photo #16: Plastic debris removed from diversion structure

## 6 Summary & Recommendations

The ROV did not observe any structural defects. Overall, the chambers were clean from floating debris. What little debris that was found in the surge chamber connecting to the one-mile outfall, which appears to be trash from storm drains, was removed by the ROV.

Based on the observed condition of the Diversion and Surge Chambers, Ballard Marine Construction recommends performing periodic inspections to ensure trash from storm drains are removed.

We hope that this information will be useful for your needs to evaluate the condition of this structure. For review of all the video footage and still images please refer to the hard drive provided with this report. The Remote Sensing & Technologies Group at Ballard Marine Construction thanks you for your business and please do not hesitate to contact me should you have any questions or comments.

Sincerely,

Randy Bekkers

Lead ROV Supervisor

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